

REMARKS

Claims 44, 45, 52, 54, 56, 59, 62 and 66-68 have been amended and claims 55, 57, 61 and 63-65 have been canceled. Claims 44, 45, 51-54, 56, 58-60, 62 and 66-68 are pending in the application. The amendments to the claims are supported by text appearing at p. 9, lines 3-12 and p. 10, lines 9-14 of the application as filed. No new matter is added by the amendments to the claims.

Claims 44, 45 and 51-67 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Office Action alleges that, "In claim 44, 'a minimum photolithographic feature dimension with which the capacitors are fabricated' is not clear, because the phrase apparently refers to a process of making, i.e., a process utilizing photolithography, but the reference to photolithography has no antecedent. Claims 44, 45, 54 and 62 have been amended to provide an antecedent for the reference to photolithography.

The Office Action also states that “minimum photolithographic feature dimension” is indefinite, because one cannot determine what this dimension might be without reference to a process of making, and no process of making is specified. The specification provides exemplary processes in conjunction with the embodiments of Figs. 1-12, 13-16 and 17-21, along with associated text.

The Office Action asks "What if the capacitor is made using, for example, e-beam lithography? Is the "minimum photolithographic

1 feature" now zero?" As is known to those of ordinary skill in the art,
2 all lithographic processes are characterized by a minimum feature size.
3 Electron beam lithography has finite feature size limits that are set by
4 well-known laws of physics that includes effects due to finite resist
5 thickness, electron scattering in vacuum and in resist and other factors.

6 Applicants are not required to exhaustively list all possibilities,
7 rather, the requirements of 35 U.S.C. § 112, first paragraph, include that
8 the specification sets forth the best mode contemplated by the inventor
9 for carrying out the invention (see MPEP 2106, §V(B)). The Office
10 Action offers the opinion that "one cannot claim a feature size that
11 varies over time" but fails to provide any authority for this opinion.
12 Applicants have requested in writing that the Examiner provide authority
13 for this opinion and note with particularity that none has been provided.

14 Claims 44, 45 and 51-67 stand rejected under 35 U.S.C. § 112,
15 first paragraph, as containing subject matter which was not described in
16 the specification in such a way as to reasonably convey to one skilled
17 in the art that the inventor had possession of the claimed invention at
18 the time the application was filed. The Office Action maintains that the
19 claims thus attempt to encompass processes that would be used in the
20 future. Applicants note that every patent claim ever filed is directed to
21 actions by an infringer in the future. The requirements that the
22 applicant needs to meet in order to have a valid claim are spelt out in
23 detail in 35 U.S.C. § 112, first paragraph.

1 These requirements are (i) that the specification provides a written
2 description of the invention (see pp. 4-13 of the specification as filed)
3 and (ii) that the specification sets forth the best mode contemplated by
4 the inventor for carrying out the invention. Applicants have met these
5 legal requirements, and, having met the requirements of the law, are
6 entitled to have these rejections withdrawn.

7 The fact that the invention may be used in combination with other
8 steps and processes is irrelevant (see MPEP 2106, esp. §§V(A)2
9 and (B)). When the claimed capacitors are fabricated in conjunction
10 with some photolithographic process used to form an integrated circuit,
11 that process will include a minimum photolithographic feature dimension
12 as a standard and well-understood characteristic of that process.

13 The Office Action states that "The claims thus attempt to
14 encompass photolithographic processes that would be used in the future.
15 The specification does not disclose the photolithographic processes that
16 will be used in the future, however, because one cannot know what these
17 processes will be." The claims DO encompass photolithographic
18 processes that will be used in the future. While these processes are not
19 presently known, it is known that they will be characterized by, among
20 other things, a non-zero minimum lithographic feature size, as are all
21 presently used lithographic processes, including electron beam processes.
22 Applicant's invention is claimed with respect to this well-known and well-
23 understood characteristic of such processes. Further, Applicants have met

1 their statutory duty to disclose the best mode for carrying out the
2 invention of which they were aware at the time the application was filed.

3 As evidence of the well- and widely-known usage of these terms,
4 applicants have performed a brief search of patents recently issued by
5 the USPTO using the patent database that is available to the Examiner.
6 The term “minimum feature size” appears in 238 patents that have
7 issued from the USPTO from January 1998 to the present, and some
8 600+ patents overall. Examples where such terms are used in claims to
9 provide meaningful and lawful definition of a properly-claimed invention
10 include U.S. Patent Nos. 5,945,704; 5,945,688; 5,953,254; 5,968,686; and
11 5,907,170. This is extrinsic evidence that the terms used in Applicant’s
12 claims put the public on adequate notice as to the claimed subject
13 matter, that these terms are understood and that these terms are used
14 to define statutory subject matter.

15 The Office Action offers the unsupported opinion that “Claims
16 cannot encompass photolithographic feature dimensions (or any other
17 structure) that cannot be produced by one of ordinary skill at the time
18 the specification is filed.” Applicants have requested, in writing, that the
19 Examiner offer a source of authority for the opinions that the Examiner
20 has expressed and note the absence of such authority in conjunction with
21 the repetition of the Examiner’s opinions. Applicants are not aware of
22 such authority and do not believe that the Examiner can provide such
23 authority because the position taken by the Examiner is contrary to law.

1 By analogy, the Examiner would require a claim directed to a
2 computer program to also specify every type of computer on which the
3 program could be run, and would disallow a claim of infringement if the
4 program were to be run on a type of computer that had not been
5 invented at the time that the claims were filed. Similarly, a claim for
6 a new type of paint spraying device would not be valid against an
7 infringer using the claimed paint spraying device to deposit a new type
8 of paint that had not been invented at the time the claims to the
9 sprayer were filed. The position taken by the Examiner is contrary to
10 the spirit and intent of patent law. Accordingly, the rejection under 35
11 U.S.C. 112, first paragraph, should be withdrawn, and claims 44, 45, 51-
12 56, 58-60, 62 and 66-68 should be allowed.

13 Claims 44, 45 and 51-67 stand rejected under 35 U.S.C. § 102(b)
14 as being anticipated by Morihara et al., "Disc-Shaped Stacked Capacitor
15 Cell For 256 Mb Dynamic Random-Access Memory", Jpn. J. App. Phys.,
16 Vol. 33, No. 8, pp. 14-19 (1994). Applicants disagree and request
17 reconsideration.

18 Claims 44, 45, 54 and 62 each distinguish by reciting, in varying
19 language, that a plug has a minimum width which is less than the
20 minimum photolithographic feature dimension. Morihara et al. describe
21 a stem that is formed using a photolithographic step (see §3, description
22 of Fig. 2A) and that thus has a minimum dimension no smaller than the
23 minimum photolithographic feature dimension. In contrast, claim 44

1 recites "each lower plate including a polysilicon plug having a diameter
2 less than the minimum photolithographic feature dimension."

3 Further, Morihara et al. do not describe or teach fins projecting
4 laterally from a polysilicon plug, as recited in claim 45, or "a polysilicon
5 plug having a diameter less than the minimum photolithographic feature
6 dimension," as recited in claim 45.

7 Morihara et al. also do not describe or teach "each lower plate
8 comprising a polysilicon plug having a diameter less than the minimum
9 photolithographic feature dimension," as recited in claim 54. Morihara
10 et al. also do not describe or teach "at least two laterally opposed fins
11 interconnected with and projecting laterally from the plug," as recited in
12 claim 54.

13 Morihara et al. do not describe or teach adjacent stacked
14 capacitors respectively including a finned lower plate, where each finned
15 lower plate comprises a polysilicon plug and at least two laterally
16 opposed fins interconnected with and projecting laterally from the plug,
17 the plug having a minimum width which is less than the minimum
18 photolithographic feature dimension, as recited in claim 62.

19 For at least these reasons, the rejection of claims 44, 45, 54
20 and 62 should be withdrawn, and claims 44, 45, 54 and 62 should be
21 allowed.

Dependent claims 51-53, 56, 58-60 and 66-68 are allowable as depending from an allowable base claims and for their own recited features which are neither shown nor suggested by the prior art.

This application is believed to be in immediate condition for allowance, and action to that end is requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

Dated: 12/21/89

By:

Frederick M. Fliegel, Ph.D.
Reg. No. 36,138